

1 1. Surgical apparatus comprising:

2 an elongated cannula having an elongated axis between distal and
3 proximal ends, and including an endoscope lumen extending as a hollow
4 bore between the distal and proximal ends for slidably receiving an
5 endoscope therein;

6 an instrument lumen extending as a hollow bore between distal and
7 proximal ends of the cannula in substantial diametric orientation therein
8 relative to the endoscope lumen;

9 an auxiliary lumen extending as a hollow bore between distal and
10 proximal ends of the cannula in substantially orthogonal orientation therein
11 relative to the diametric orientation of the endoscope lumen and instrument
12 lumen; and an elongated support slidably disposed within the bore of the
13 auxiliary lumen to selectively extend beyond the distal end of the cannula,
14 and including an end effector mounted distally on the elongated support for
15 movement therewith beyond the distal end of the cannula.

1 2. Surgical apparatus comprising:

2 an elongated cannula having an elongated axis between distal and
3 proximal ends, and including an endoscope lumen extending as a hollow

4 bore between the distal and proximal ends for slidably receiving an
5 endoscope therein;
6 an instrument lumen extending as a hollow bore between distal and
7 proximal ends of the cannula in the substantial diametric orientation therein
8 relative to the endoscope lumen;
9 a pair of auxiliary lumens extending as hollow bores between distal
10 and proximal ends of the cannula in substantially diametric orientation on
11 opposite sides of, and in skewed relation to, the diametric orientation of the
12 endoscope lumen and instrument lumen; and
13 elongated supports slidably disposed within the bores of the pair of
14 auxiliary lumens to selectively extend beyond the distal end of the cannula,
15 and including a vessel cradle mounted to traverse the distal ends of the
16 elongated supports.

1 3. Surgical apparatus according to claim 2 in which the vessel cradle
2 includes a substantially U-shaped transverse segment between the elongated
3 supports for positioning about the distal end of an endoscope received in the
4 endoscope lumen.

1 4. Surgical apparatus according to claim 2 including a manual control
2 element attached to an elongated support and disposed for manually
3 activated sliding movement thereof near the proximal end of the cannula.

1 5. Surgical apparatus according to claim 4 including a resilient
2 elongated support attached to the manual control element for sliding
3 movement thereof near the proximal end of the cannula along a direction
4 skewed relative to the elongated axis of the cannula.